

CLAIMS

WHAT IS CLAIMED IS:

1 1. For supporting an upper end of an elongated vertical offshore oil and gas riser of a
2 given diameter in a body of water, an improved buoyancy can of the type that includes a vertical
3 axial bore through which the riser extends coaxially, the improvement comprising:

4 a radio-axial slot extending through a side of the can and into the axial bore thereof, the
5 slot having a width greater than the diameter of the riser.

6
1 2. The buoyancy can of claim 1, wherein the riser includes a first support feature dis-
2 posed coaxially thereon adjacent to an upper end thereof, and wherein the buoyancy can further
3 comprises:

4 a first socket disposed at an upper end of the axial bore thereof, the first socket being
5 adapted to receive the first support feature in a complementary, axial engagement, and to support
6 the first support feature vertically.

7
1 3. The buoyancy can of claim 2, wherein the riser further includes a second support fea-
2 ture disposed coaxially thereon at a selected distance below the first support feature, and wherein
3 the buoyancy can further comprises:

4 a second socket disposed in the axial bore thereof, the second socket being spaced below
5 the first socket by the selected distance and adapted to receive the second support feature in a
6 complementary, axial engagement, and to support the second support feature vertically.

1 4. The buoyancy can of claim 2, wherein the first support feature comprises a hang-off
2 plug.

3 5. The buoyancy can of claim 3, wherein the second support feature comprises a riser
4 ball having a given diameter, and wherein the radio-axial slot further comprises:

5 a radial bore extending through the side of the can and into the axial bore thereof, the ra-
6 dial bore having a diameter greater than the diameter of the riser ball.

1 6. The buoyancy can of claim 5, wherein the second support feature further comprises a
2 pair of stress joints disposed back-to-back on the riser ball.

1 7. The buoyancy can of claim 3, wherein the second support feature comprises a stab-in
2 connector having a cross-sectional profile, and wherein the radio-axial slot further comprises;
3 a radial bore extending through the side of the can and into the axial bore thereof, the ra-
4 dial bore having a cross-sectional profile larger than the cross-sectional profile of the stab-in con-
5 nector.

1 8. The buoyancy can of claim 2, wherein the first support feature comprises a flex joint,
2 and the first socket comprises a flex joint receptacle.

1 9. The buoyancy can of claim 5, wherein the second socket is disposed at a lower end of
2 the buoyancy can and comprises a keel joint sleeve.

1 10. The buoyancy can of claim 7, wherein the second socket is disposed at a lower end
2 of the buoyancy can and comprises a flex joint receptacle.

1 11. The buoyancy can of claim 1, wherein the can comprises at least one buoyant com-
2 partment, and wherein the buoyancy of the at least one compartment is adjustable.

1 12. The buoyancy can of claim 1, wherein the can further comprises a plurality of verti-
2 cal axial bores, each capable of receiving and supporting a riser therein.

1 13. A method for supporting an upper end of an elongated vertical offshore oil and gas
2 riser of a given diameter in a body of water, the method comprising:

3 suspending the upper end of the riser such that the lower end of the riser extends verti-
4 cally below the surface of the water;

5 providing a buoyancy can in the water and adjacent to the riser, the can having a vertical
6 axial bore and a radio-axial slot extending through a side of the can and into the axial bore, the
7 slot having a width greater than the diameter of the riser; and,

8 urging the can and the riser together laterally in the water such that the riser passes
9 through the radio-axial slot in the can and is disposed coaxially in the axial bore thereof.

1 14. The method of claim 13, wherein the riser includes at least one support feature dis-
2 posed coaxially thereon adjacent to the upper end thereof, and further comprising:
3 providing at least one socket in the axial bore of the buoyancy can, the at least one socket
4 being adapted to receive the at least one support feature in a complementary, axial engagement,
5 and to support the first support feature vertically; and,
6 adjusting the vertical position of at least one of the riser and the buoyancy can such that
7 the at least one support feature of the riser is axially seated in the at least one socket of the can.